

The Smart Camera video surveillance system was developed at Lawrence Livermore National Laboratory (LLNL) for high-level weapons security applications.

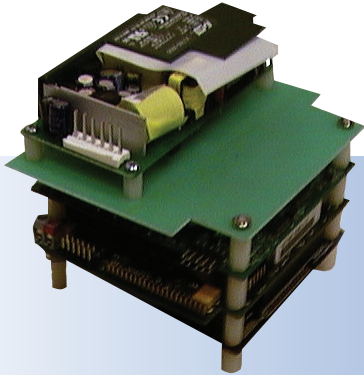
The initial system design was completed in fiscal year 2000. Several prototype units are undergoing alpha and beta testing and evaluations.

Key features of the system include:

- Encryption and authentication
- Tamper protection
- Object recognition

Potential market applications include:

- Secure building and facility monitoring
- Public transportation security: airports, train stations, and seaports
- Traffic monitoring
- Law enforcement
- High asset facilities surveillance: banks, casinos, etc.



Smart Camera embedded microprocessor and interface hardware.

For information regarding partnering opportunities with LLNL Engineering on the Smart Camera system or other technologies, contact:

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Pictured on the cover are members of the Smart Camera team: (left to right) Ed Orham, Tammy Dobbins, Velimir Mlaker, Doug Coffland (lead), Tina Huston, and Virgil Kohlhepp.



Lawrence Livermore National Laboratory

Smart Camera

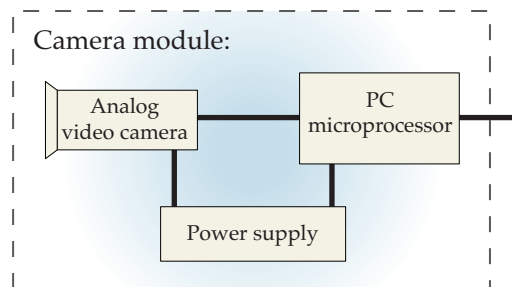
A state-of-the-art digital video surveillance system

*Can your company
benefit from
Smart Camera technology?**

*LLNL is currently looking for industrial partners to assist in the commercialization of this and other technologies. Please note that this is not an offer for sale, but an advertisement of available technology for commercialization.

http://www-eng.llnl.gov/LLNL_Smart_Camera_Website/

The Smart Camera (SC) is a stand-alone, high-end, digital video surveillance system that uses standard PC microprocessor and local area network (LAN) technology. The embedded microprocessor (within the camera module) allows for automated preliminary scene analysis and alarm/notification level decision-making, which lowers false alarm rates and reduces the amount of operator interactions.



The SC technology provides many advanced features over traditional analog closed-circuit television systems, including:

- Encryption and authentication for control and video data communications between camera module and host/viewer computer, which prevents “spoofing” and makes the system tamper proof
- Multiple user viewing and control capability
- Remote software modification and update capability
- Robust system maintenance tools
- Loop recording or instant replay capability
- Application Programming Interfaces (APIs) for ease of system enhancement or modifications by end users or third party providers

- Digitally-enhanced features, including:
 - Object recognition
 - Scene analysis
 - Intelligent alarm processing
 - Remote camera tilt, pan, and zoom

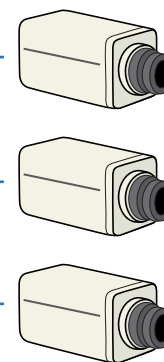
Host/viewer PCs



Prototype Camera Module Nominal Specifications

- External environmental enclosure:
 - Compatible with PELCO Model EH4718-1 enclosure
- Physical (including standard analog video camera):
 - Size (outside dimension) 21" x 7" x 5"
 - Weight approximately 17 lbs.
- Power (including standard analog video camera):
 - 30 watts maximum at 120V AC
 - DC and battery option also available

Smart camera modules



The Smart Camera system can support multiple camera modules and/or host/viewer PCs.